

REMARKS

The Office Action dated April 24, 2007 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-46 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claims 47-48 have been added. No new matter has been added. Claims 1-46 and 47-48 are submitted for consideration.

Claims 1-6, 8-19, 21-32 and 34-46 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,815,811 to Pinard (hereinafter Pinard). The rejection is traversed as being based on a reference that neither teaches nor suggests the novel combination of features clearly recited in claims 1-6, 8-19, 21-32 and 34-46 and newly added claims 47-48.

Claim 1, upon which claims 2-13 depend, recites a method including receiving roaming support information by means of signaling from a subscriber terminal via an interface to a load control device being located externally to the subscriber terminal. The roaming support information is determined on the basis of access point status information determined in a plurality of access points and communication status information related to the plurality of access points. The method also includes processing, in the load control device, the roaming support information by an access point related load based roaming analysis. The method further includes deciding, on the basis of a result of the access point related load based roaming analysis, whether the subscriber terminal is to be

associated with another one of the plurality of access points; and if so, sending a command to a serving access point associated with the subscriber terminal, the command instructing the serving access point to initialize roaming of the subscriber terminal to the another one of the plurality of access points.

Claim 14, upon which claims 15-26 depend, recites a system for load balancing in a wireless communication network. The wireless communication network includes at least one subscriber terminal configured to establish and perform a wireless communication connection in the wireless communication network and a plurality of access points configured to control the wireless communication connection of the at least one subscriber terminal and to exchange information with the at least one subscriber terminal. One of the plurality of access points is associated with the at least one subscriber terminal. The system includes an access point load status monitoring unit located in each one of the plurality of access points and configured to measure a traffic load of an access point and to transmit access point status information. The system also includes a roaming support unit located in the subscriber terminal and configured to receive the access point status information from the plurality of access points, to determine communication status information related to the plurality of access points, to process the received access point status information and the communication status information in order to obtain roaming support information and to transmit the roaming support information. The system further includes a load control device located externally to the subscriber terminal. The load control device is configured to receive the roaming

support information by signalling via an interface from the subscriber terminal, to process the roaming support information by an access point related load based roaming analysis, to decide, on the basis of a result of the access point related load based roaming analysis, whether the subscriber terminal is to be associated with another one of the plurality of access points, and to send a command to a serving access point associated with the subscriber terminal to initialize roaming of the subscriber terminal from the associated one to the another one of the plurality of access points in the wireless communication network.

Claim 27, upon which claims 28-42 depend, recites a load control device configured to receive roaming support information by means of signaling from a subscriber terminal via an interface. The roaming supporting information is determined on the basis of access point status information of a plurality of access points. The load control device is also configured to process the roaming support information by an access point related load based roaming analysis and to decide, on the basis of a result of the access point related load based roaming analysis, whether the subscriber terminal is to be associated with another one of the plurality of access points. The load control device is further configured to send a command to a serving access point associated with the subscriber terminal, the command instructing the serving access point to initialize roaming of the subscriber terminal from the associated one to the another one of the plurality of access points in the wireless communication network. The load control device is located externally to the subscriber terminal.

Claim 43, upon which claims 44-46 depend, recites a computer program product embodied on a computer readable medium. The computer program product is configured to execute a method including receiving roaming support information by means of signaling from a subscriber terminal via an interface to a load control device being located externally to the subscriber terminal. The roaming support information is determined on the basis of access point status information determined in a plurality of access points and communication status information related to the plurality of access points. The method also includes processing, in the load control device, the roaming support information by an access point related load based roaming analysis. The method further includes deciding, on the basis of a result of the access point related load based roaming analysis, whether the subscriber terminal is to be associated with another one of the plurality of access points; and if so, sending a command to a serving access point associated with the subscriber terminal, the command instructing the serving access point to initialize roaming of the subscriber terminal to the another one of the plurality of access points.

As outlined below, the cited reference of Pinard does not teach or suggest the all of the elements of the pending claims.

Pinard discloses a communications network including a cellular local area wireless network which includes a plurality of access points connected to a housed computer and each other, and a plurality of mobile units. Each mobile unit is arranged for association with an access point. The mobile units are arranged to periodically scan for and identify

the most eligible access point for association on the basis of the criteria of best quality signal strength and loading factor. In order to identify when mobile units are being removed from a predetermined area, access points having directional antennae are situated adjacent to exit points to detect when mobile units are in a vicinity.

Applicant submits that Pinard does not teach or suggest each of the elements of the pending claims. Each of independent claims 1, 14, 27, 43, 47 and 48, in part, recites that roaming support information is sent to the load controller by means of a signaling via an interface and that a serving access point is used for sending a roaming initialization instruction to the subscriber terminal. Each of independent claims 1, 14, 27, 43, 47 and 48, also recites that the load control device is located externally to the subscriber terminal. Pinard does not teach or suggest these features.

Generally, the present invention is directed to a load balancing mechanism in a communication network, such as WLAN, where a decision for performing roaming or making a handover of a subscriber terminal from one access point to another is made by an external load controller. As such, the functionality for making the handover decision is moved from the conventionally used terminal side to the access point side of the network. In other words, the terminal does not make the decision for performing roaming, as is conventionally known, but a specific load controller which can be located either in the access point itself or in an additional network element makes the roaming decision. Thus, by using the arrangement of the present invention, as recited in the pending claims, roaming performance can be improved by reducing the occurrence of unwanted back and

forth effects, and the handover algorithm is not limited to a possibly limited performance on the terminal side.

On the other hand, Pinard is directed to a conventional mechanism where a handover decision is made in the terminal itself. See at least Col. 3, lines 14-17, Col. 3, lines 32-34, and Col. 5, lines 38-39 of Pinard. Pinard does not teach or suggest the use of a load controller being located external to the terminal for making the handover decision. Therefore, Applicant respectfully asserts that the rejection under 35 U.S.C. §102(b) should be withdrawn because Pinard fails to teach or suggest each feature of claims 1, 14, 27, 43, 47 and 48 and hence, dependent claims 2-13, 15-26, 28-42 and 44-46 thereon.

Claims 7, 20 and 33 were rejected under 35 U.S.C. 103(a) as being unpatentable over Pinard in view of U.S. Patent No. 6,148,210 to Elvin (hereinafter Elvin). According to the Office Action, Pinard teaches all of the elements of claims 7, 20 and 33 except for teaching that a hand-off algorithm is used to calculate load and connection quality situations for the plurality of access points of the basis of the roaming support information and to determine an optimal access point for being associated with the subscriber terminal. Therefore, the Office Action combined the teachings of Pinard and Elvin to yield all of the elements of claims 7, 20 and 33. The rejection is traversed as being based on references that neither teach nor suggest the novel combination of features clearly recited in claims 7, 20 and 33.

Elvin discloses that in a distributed communication system such as a personal handy-phone system, when a new call must be connected through a cell station, the

controller associated with the cell station checks to see if the cell station is fully loaded. If so, the controller issues a zone report request to portable telephones currently having calls connected through that cell station, and the telephones check to see if they can reconnect to a different cell station. The phones then issue a zone report to the controller indicating whether or not they are re-connectable, and one or more of the phones are directed to reconnect based on information contained in the zone reports. Consequently, a space on the target cell station is freed so that the new call can be connected. This technique is useful for incoming calls from a wire-line network, outgoing calls from a portable telephone, and handoffs of a roaming portable telephone, and can also be used in an overall cell station loading management scheme.

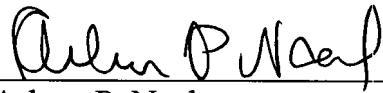
Elvin does not cure any of the deficiencies of Pinard as noted above. Specifically, Elvin does not teach or suggest that the load control device is located externally to the subscriber terminal, as recited in claims 1, 14, 27, upon which claims 7, 20 and 33 depend. Therefore, Applicant respectfully asserts that the rejection under 35 U.S.C. §103(a) should be withdrawn because neither Pinard nor Elvin, whether taken singly or combined, teaches or suggests each feature of claims 1, 14, 27 and hence, dependent claims 7, 20 and 33 thereon.

As noted previously, claims 1-46 and 47-48 recite subject matter which is neither disclosed nor suggested in the prior art references cited in the Office Action. It is therefore respectfully requested that all of claims 1-46 and 47-48 be allowed and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosures: Additional Claim Fee Transmittal
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